BIAMP®

AudiaVOIP

Operation Manual

July 2012

IMPORTANT SAFETY INSTRUCTIONS

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do not use this product near water.

6) Clean only with dry cloth.

7) Do not block ventilation openings. Install in accordance with the manufacturer's instructions.

8) Do not install near any heat sources such as radiators, heat registers, stoves, or other product (including amplifiers) that produce heat.

9) Do not defeat the safety purpose of the grounding-type plug. A grounding type plug has two blades and a third grounding prong.

The third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the product.

11) Only use attachments/accessories specified by the manufacturer.

12) Use only with equipment rack, cart, stand or table designed to provide adequate mechanical strength, heat dissipation and securement to the building structure.

When a cart is used, use caution when moving the cart and product combination to avoid injury from tip-over.

13) Unplug this product during lightning storms or when unused for long periods of time.

14) Refer all servicing to qualified service personnel. Servicing is required when the product has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the product, the product has been exposed to rain or moisture, does not operate normally, or has been dropped.

WARNING - To reduce the risk of fire or electric shock, do not expose this product to rain or moisture.

WARNING - This product employs Safety Grounding and must be connected to a MAINS socket that is properly grounded to provide a protective earthing connection.

WARNING – Speaker terminals marked with the symbol ⚠ are Hazardous Live. External wiring connected to these terminals requires installation by qualified electrical installer.

Disconnect Device - The MAINS plug is used to disconnect MAINS power and must remain readily operable.

Explanation of safety related symbols - Product labeling and the operation manual may use the internationally recognized symbols defined below to note safety messages.

Lightning Bolt: Hazardous Live voltages present when this unit is in operation. Do not touch terminals marked with this symbol while the unit is connected to live power.

Exclamation Point: Replace components (i.e. fuses) only with the values specified by the manufacturer. Failure to do so will compromise safe operation of this unit.

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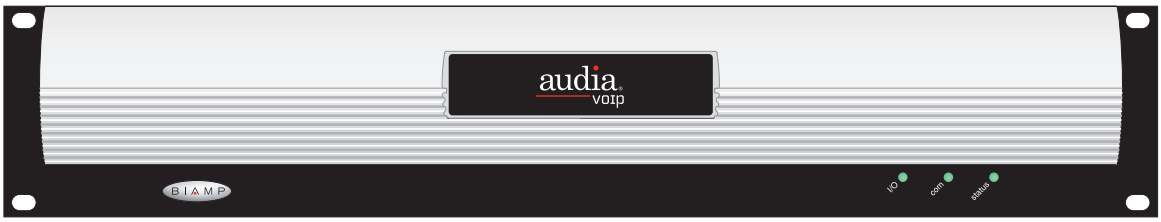
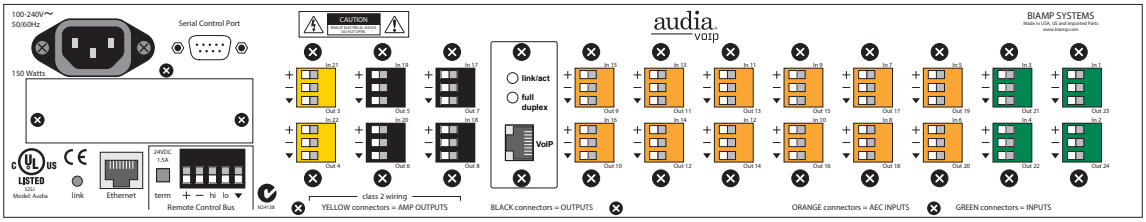


AudiaVOIP
AudiaVOIP is a dedicated version of AudiaFLEX NC, the benchmark in digital audio systems for demanding professional sound installations. AudiaVOIP provides the same easy-to-use software and functional algorithms, available in AudiaFLEX with the added ease of a predefined fixed I/O configuration and factory loaded DAP file optimized for VoIP teleconferencing. The intuitive software provides audio system design capabilities via PC computer, and allows easy selection, viewing, and calibration of numerous audio components: mixers, combiners, matrixes, equalizers, filters, crossovers, dynamics, routers, delays, remote controls, meters, generators, diagnostics, etc. Once a system design is compiled, it is downloaded into AudiaVOIP, where it can then be controlled via third-party systems such as AMX® and Crestron®, via daVinci™ software, and/or via dedicated Audia remote control panels. For more complete instructions, see the software Help file or the printable Help document.

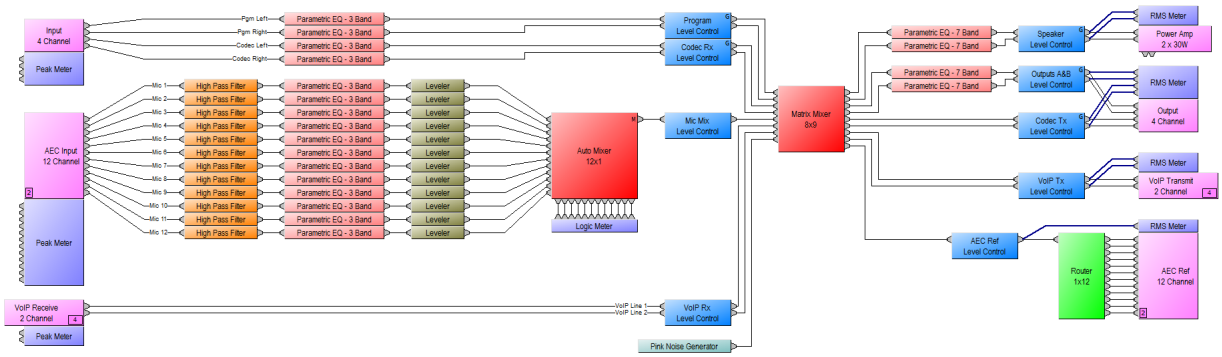
FEATURES
- Sona™ Acoustic Echo Cancellation (AEC)
- Comes preconfigured with:
  - 12 AEC inputs
  - 4 mic/line inputs
  - 4 line outputs
  - 2 amplified outputs
  - 2 VoIP lines
- Configuration/control via PC/laptop
- Remote control panels for levels, presets, etc.
- Third-party control via RS-232
- Built-in diagnostic tools
- Remote function control via Ethernet
- CE marked, UL listed and RoHS compliant
- Covered by Biamp Systems' five year warranty
- Ability to select, view and calibrate:
  - Mixers – standard, automatic, matrix, combiners
  - Equalizers – graphic, parametric, feedback
  - Filters – HPF, LPF, high shelf, low shelf, all-pass
  - Crossovers – 2-way, 3-way, 4-way
  - Dynamics – leveler, comp/limiter, ducker, ANC
  - Routers – 2x4 ~ 56x56
  - Delays – 0 ~ 2000ms
  - Controls – levels, mutes, presets, schedulers, logic gates, RS-232 commands, etc.
  - Meters – signal present, peak, RMS
  - Generators – tone, pink noise, white noise
  - Diagnostics – transfer function

AudiaVOIP



AudiaVOIP comes preconfigured with 4 mic/line inputs, 12 AEC inputs, 4 line outputs, 2 amplified outputs and 2 VoIP lines. The device comes preloaded with a default software configuration file that is able to be customized to meet a wide range of applications.

Preloaded DAP File

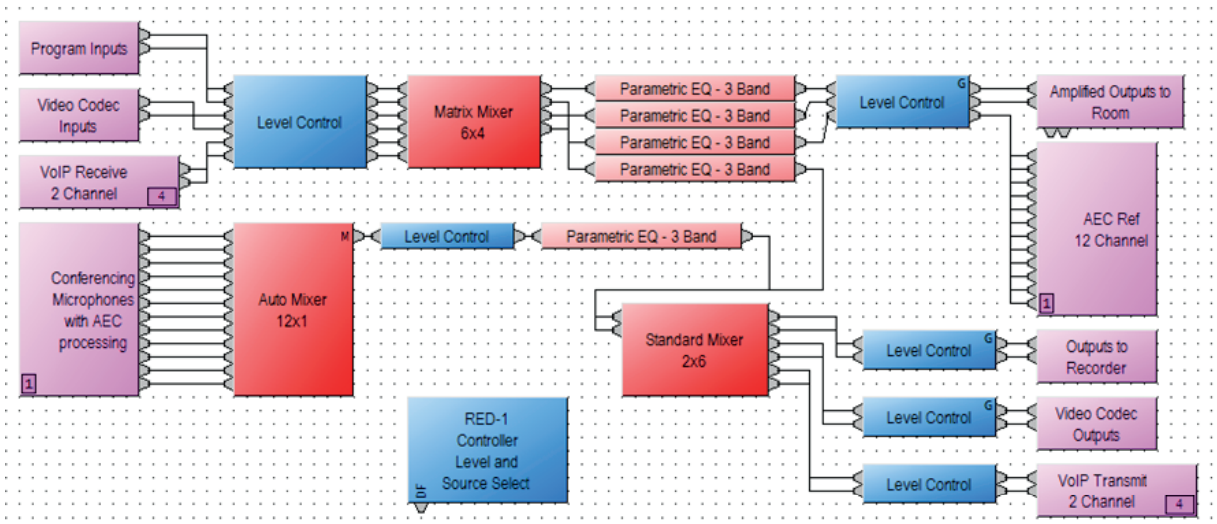


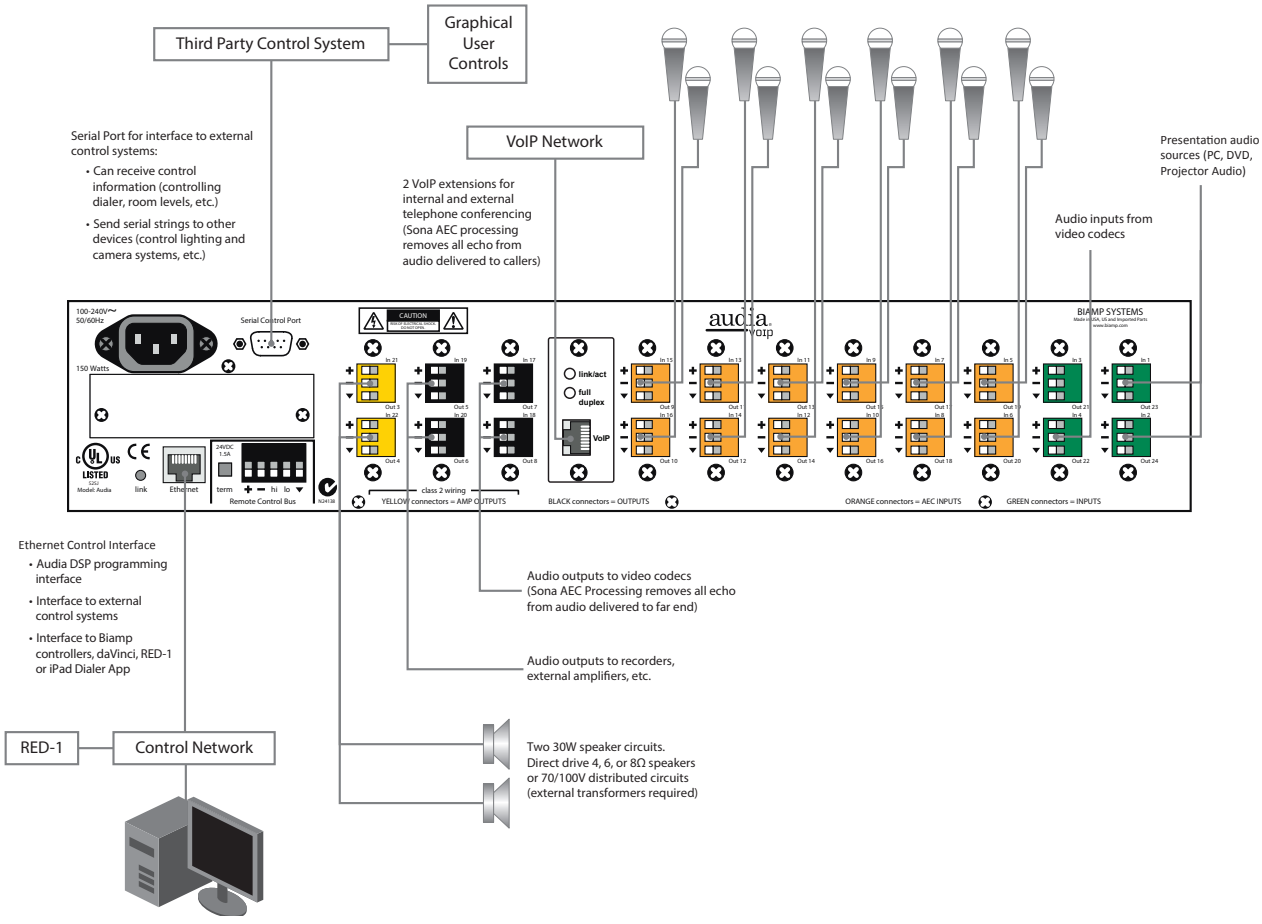
Card Configuration

The fixed configuration is achieved with the following cards:

Card	Slot	Channel		Default Software Configuration file connection
		Input	Output	
IP-2	1	1		Program Left
		2		Program Right
IP-2	2	3		Codec Receive Left
		4		Codec Receive Right
AEC-2HD	3	5		Room Microphone 1
		6		Room Microphone 2
AEC-2HD	4	7		Room Microphone 3
		8		Room Microphone 4
AEC-2HD	5	9		Room Microphone 5
		10		Room Microphone 6
AEC-2HD	6	11		Room Microphone 7
		12		Room Microphone 8
AEC-2HD	7	13		Room Microphone 9
		14		Room Microphone 10
AEC-2HD	8	15		Room Microphone 11
		16		Room Microphone 12
VoIP-2	9	17	17	VoIP Telephone Line 1
		18	18	VoIP Telephone Line 2
OP-2e	10		19	Codec Transmit Left
			20	Codec Transmit Right
OP-2e	11		21	Auxiliary Output A
			22	Auxiliary Output B
PA-2	12		23	4 or 8 Ω Room Speakers Channel 1
			24	4 or 8 Ω Room Speakers Channel 2

EXAMPLE CONFIGURATION



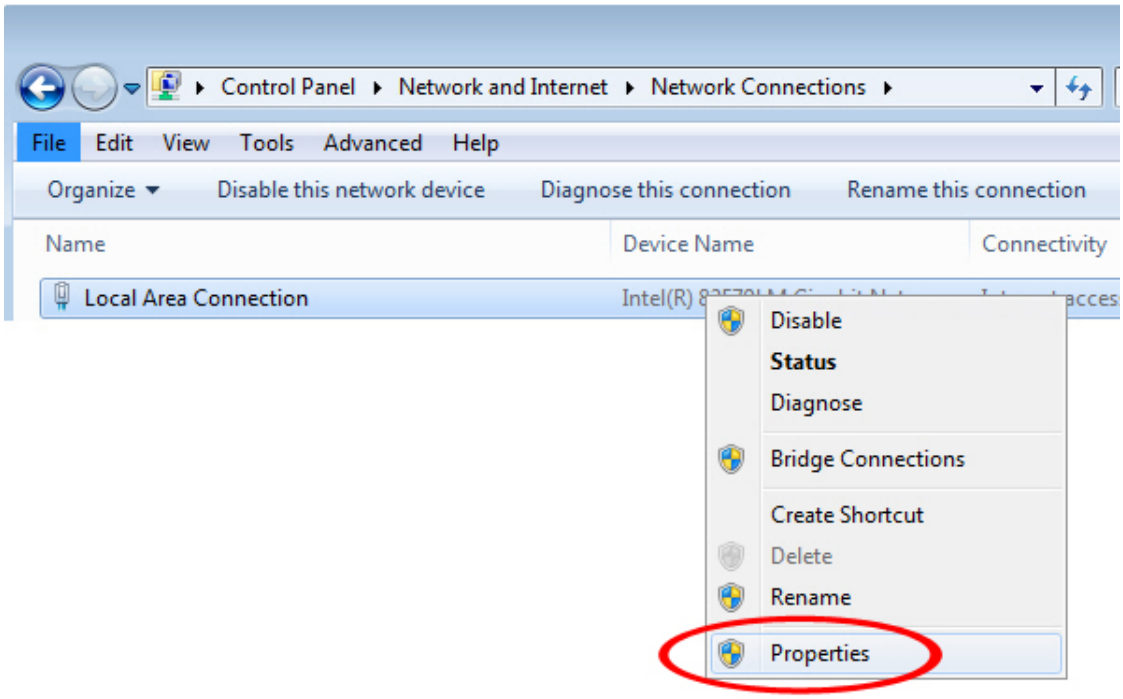

Third Party Control System
Graphical User Controls
Serial Port for interface to external control systems:
• Can receive control information (controlling dialer, room levels, etc.)
• Send serial strings to other devices (control lighting and camera systems, etc.)
VoIP Network
2 VoIP extensions for internal and external telephone conferencing (Sona AEC processing removes all echo from audio delivered to callers)
Presentation audio sources (PC, DVD, Projector Audio)
Audio inputs from video codecs
Ethernet Control Interface
• Audia DSP programming interface
• Interface to external control systems
• Interface to Biamp controllers, daVinci, RED-1 or iPad Dialer App
Audio outputs to video codecs (Sona AEC Processing removes all echo from audio delivered to far end)
Audio outputs to recorders, external amplifiers, etc.
Two 30W speaker circuits. Direct drive 4, 6, or 8Ω speakers or 70/100V distributed circuits (external transformers required)
RED-1
Control Network
YELLOW connectors = AMP OUTPUTS
BLACK connectors = OUTPUTS
ORANGE connectors = AEC INPUTS
GREEN connectors = INPUTS

1. **Install Audia software** on a Windows PC.
   Download from here: http://www.biamp.com/products/audia/downloads.aspx

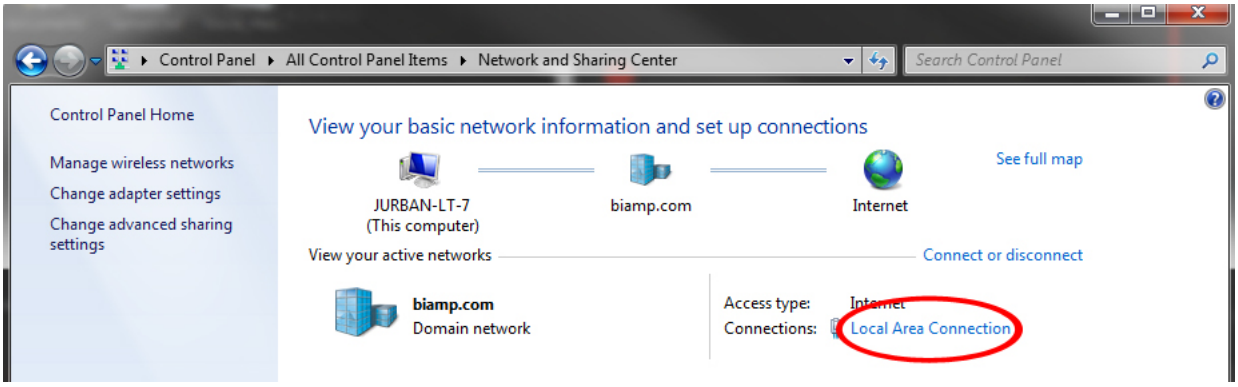
2. **Minimum PC requirements:**
   Windows® 7 (32-bit), Vista (32-bit), or XP Professional SP2/SP3 (32-bit)
   256MB RAM
   Pentium® 4 1.5GHz or faster
   10/100 Base-T Ethernet Card
   1280x1024 screen resolution (recommended)

3. **Assign an IP address to the PC**.
   The PC must have a unique IP address before it can communicate with an Audia device. Please note that AudiaVOIP does not support DHCP or Zero Conf (Link Local) addressing.

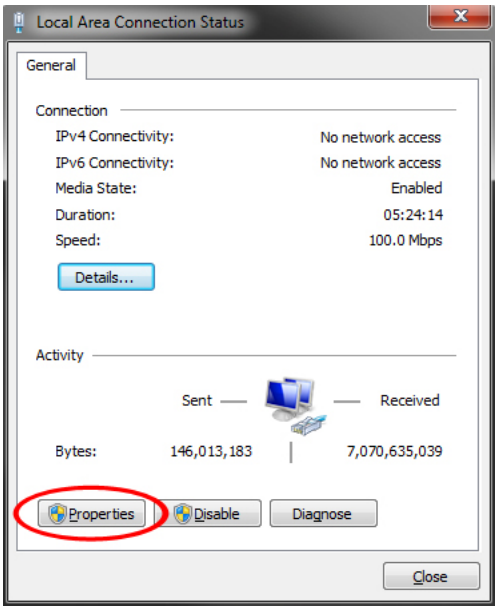
   Windows XP users: Go to **Control Panel > Network and Internet > Network Connections**.
   Confirm the Local Area Connection you will be using. Right click and select Properties.



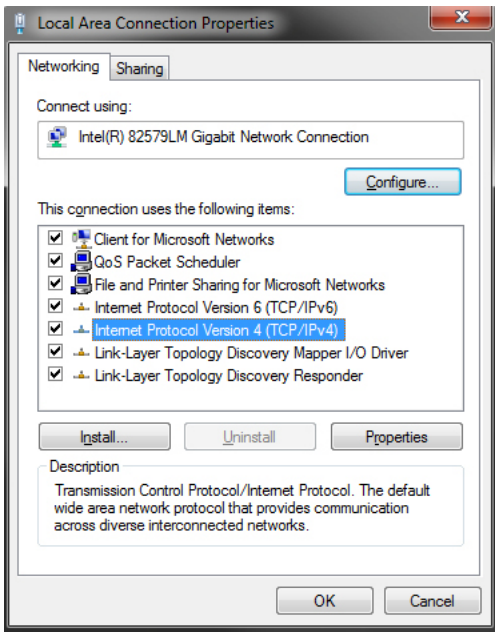
Windows 7 users: Go to **Control Panel > Network and Sharing Center**. Click on Local Area Connection.



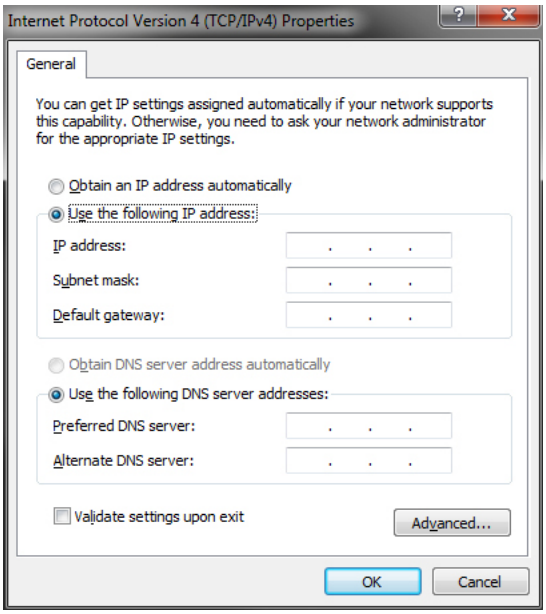
The **Local Area Connection Status** Dialog will open. Select Properties.



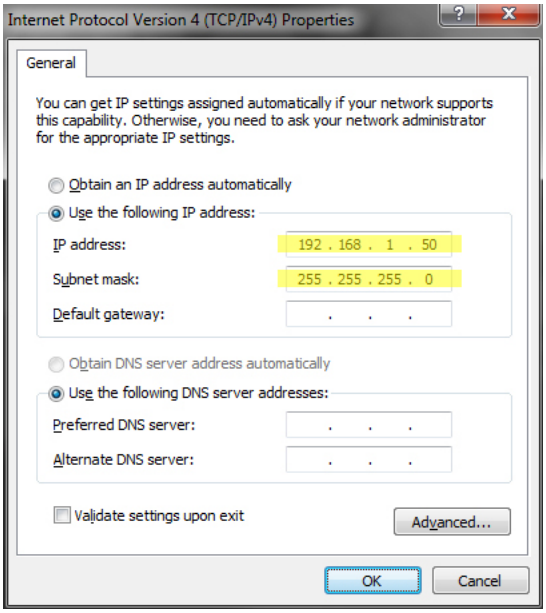
The **Local Area Connection Properties** Dialog will open. Double-Click **Internet Protocol Version 4 (TCP/IPv4)**.



The **Internet Protocol Version 4 (TCP/IPv4) Properties** will open.


Internet Protocol Version 4 (TCP/IPv4) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel

Update the IP address and Subnet mask to the same range as the AudiaVOIP default. The IP address should be 192.168.1.x (x=1-254). Subnet mask should be 255.255.255.0.


Internet Protocol Version 4 (TCP/IPv4) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 168 . 1 . 50
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel

Click OK when complete. Close Network.

4. Connect the PC to the network.

There are two ways to connect a PC and AudiaVOIP system together.

Direct connection:

Attach a "crossover" Ethernet cable from the PC's 10/100 Base-T network card to the AudiaVOIP Ethernet port. You can easily determine if an Ethernet cable is a "crossover" by looking at the conductors on the RJ-45 connectors. If the wiring of pins 1,2, 3 and 6 is different on both ends, it is a "crossover" Ethernet cable.

Connecting via Ethernet switch:
Attach a "straight-through" Ethernet cable from the PC's 10/100 Base-T network card to a 10/100 Base-T Ethernet switch. "Straight-through" Ethernet cables connect transmit pins directly to receive pins (pin 1 to pin 1, pin 2 to pin2, pin 3 to pin3, etc.). You can easily determine if an Ethernet cable is "straight-through" by looking at the conductors on the RJ-45 connectors. If the wiring is identical on both ends, it is a "straight-through" Ethernet cable.

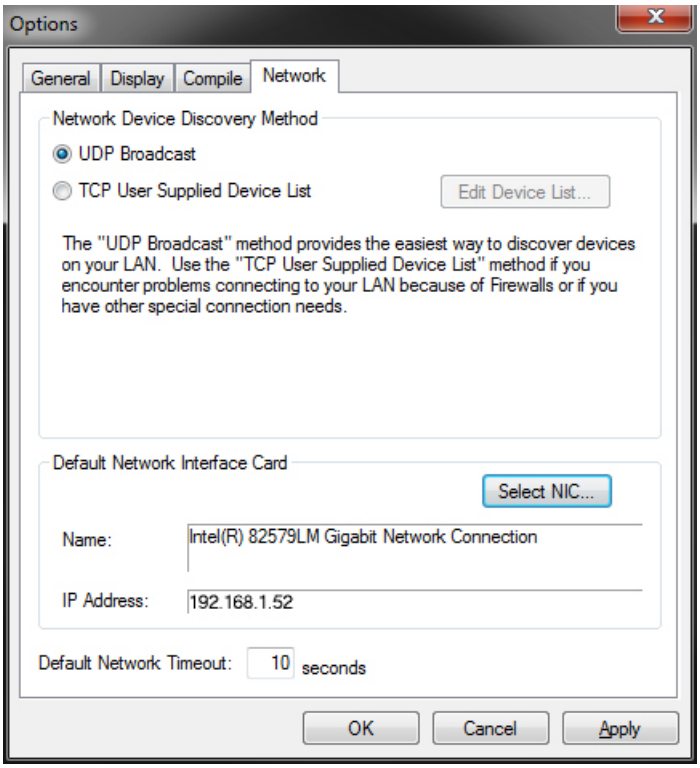
5. **Power up Audia devices.**
Connect the supplied power cord to a grounded AC mains voltage of 100-240VAC @50/60Hz. Connect the other end of the power cord to the power entrance located on the rear of the Audia unit. Note the status of the front panel LED's. Under normal conditions, all LED's will remain green once power-up sequence has completed.

6. **Connect the Audia device to the network.**

Direct connection:
Attach a "crossover" Ethernet cable from the PC's 10/100 Base-T network card to the AudiaVOIP Ethernet port. You can easily determine if an Ethernet cable is a "crossover" by looking at the conductors on the RJ-45 connectors. If the wiring of pins 1,2, 3 and 6 is different on both ends, it is a "crossover" Ethernet cable.

Connecting via Ethernet switch:
Attach a "straight-through" Ethernet cable from the PC's 10/100 Base-T network card to a 10/100 Base-T Ethernet switch. "Straight-through" Ethernet cables connect transmit pins directly to receive pins (pin 1 to pin 1, pin 2 to pin2, pin 3 to pin3, etc.). You can easily determine if an Ethernet cable is "straight-through" by looking at the conductors on the RJ-45 connectors. If the wiring is identical on both ends, it is a "straight-through" Ethernet cable.

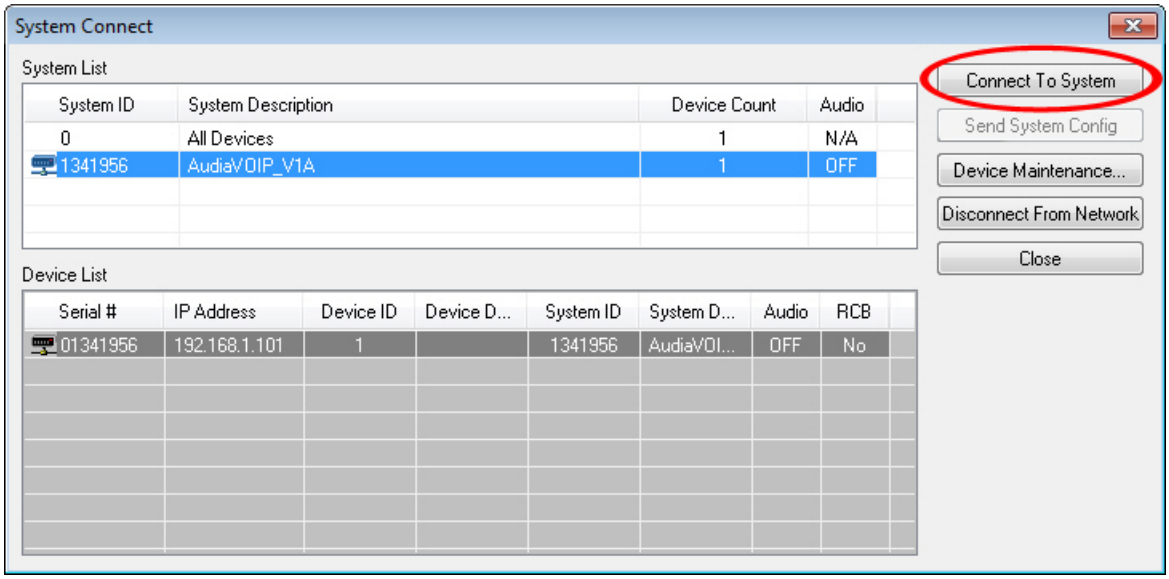
7. **Configure NIC in the Audia software.**
Open Audia software and select the correct network interface card. From the Audia menu go to **Tools > Options**. Click on the Network tab, then press **Select NIC**.



8. Connect to the network with Audia software.

Open the Audia software. Connect to the network by going to **File > Network > Connect to network**.

Select the required device listed in the System List and press **Connect to System**.



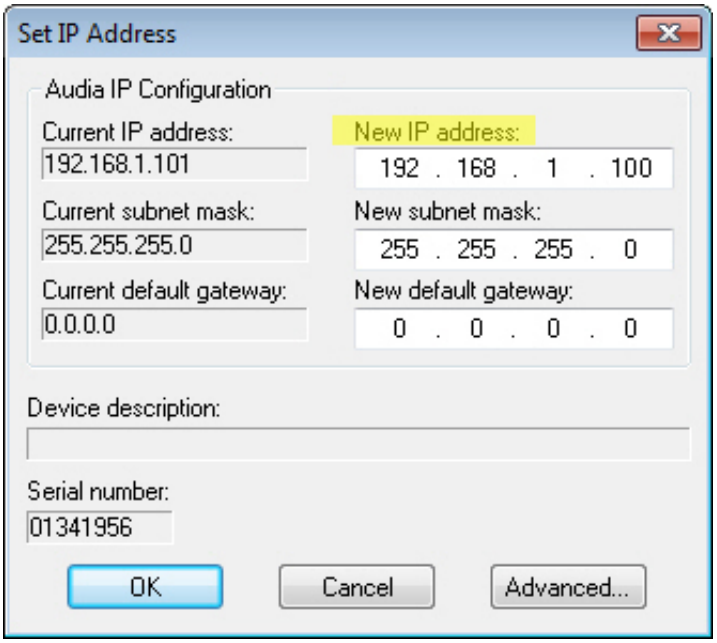
The software will connect and allow real time user control. When required changes have been made, disconnect the PC from the Audia system by going to **File > Network > Disconnect from Audia system**.

Finally, disconnect the PC from the network by going to **File > Network > Disconnect from network**.

ASSIGNING DIFFERENT IP ADDRESSES

All AudiaVOIP units ship from the factory with an assigned IP address of 192.168.1.101 . When using more than one device in a system, each device must have a unique IP address. Audia device IP addresses must be different from any IP address that will be used in this system. AudiaVOIP does not support DHCP or Zero Conf (Link Local) addressing. Please note that adjusting Audia IP addresses will stop system audio.

1. In the Audia software, go to **File > Network > Connect to network**.
2. Once you are connected, go to **File > Network > Perform Audia Device Maintenance > Select desired Audia device > Set IP address**.



3. Update the IP Address, Subnet mask and Gateway values to the new settings.
4. Click OK when complete.
5. Close Device Maintenance when complete.
6. Connect to the system and restart the audio.

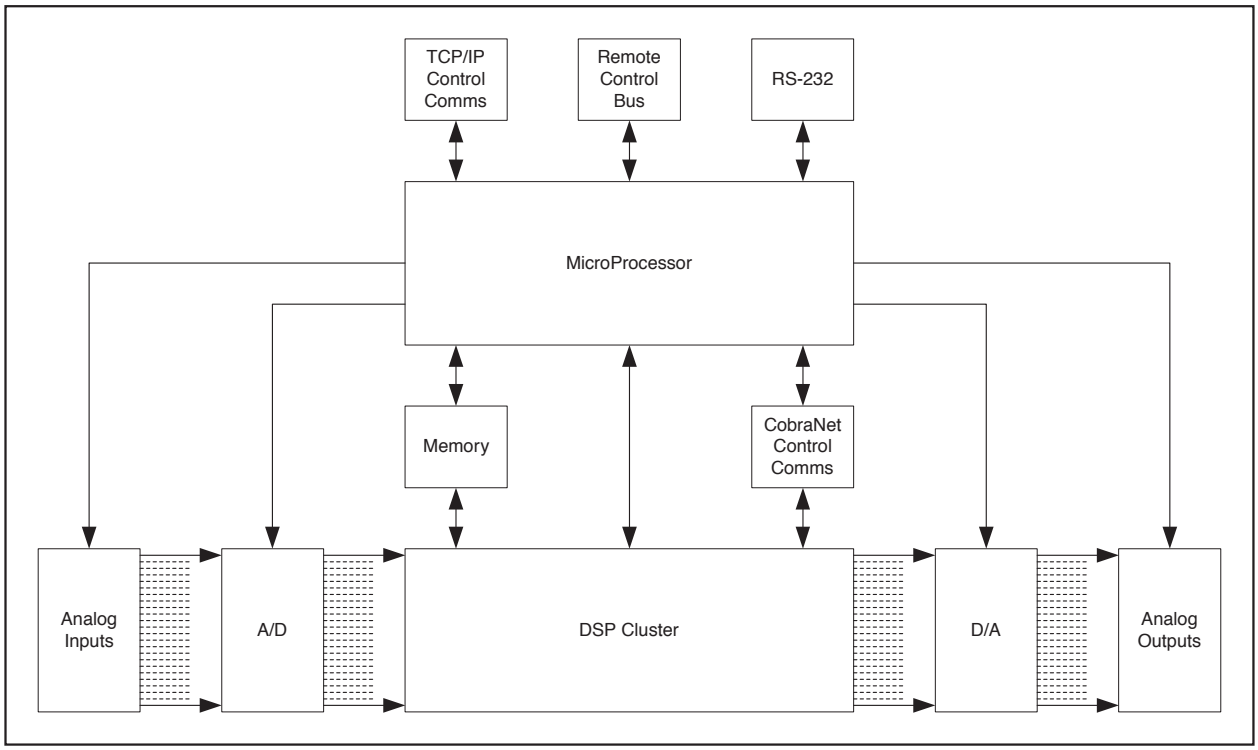
Note: To avoid conflict issues that occur when connecting multiple Audia devices with the same IP number, be sure to only connect one Audia device at a time to the Ethernet switch when assigning IP addresses.

AudiaVOIP SPECIFICATIONS

Frequency Response (20Hz-20kHz @ +4dBu):	+0/-0.4dB
THD+N (20Hz-20kHz @ +4dBu):	
line level	< 0.006%
mic level	< 0.04%
EIN (20Hz-20kHz, 66dB gain, 150Ω):	-125dB
Dynamic Range (20Hz-20kHz, 0dB):	> 107dB
Maximum Gain (input channels):	66dB
Crosstalk (channel-to-channel @ 1kHz):	
line level	< -80dB
mic level	< -75dB
Output Impedance (balanced):	200Ω
Input Impedance (mic/line balanced):	8kΩ
Maximum Output (balanced):	+24dBu
Maximum Input (mic/line):	+24dBu

Phantom Power:	+48 VDC (7mA/input)
Input Gain Range (variable trim):	0dB ~ +66dB
Sampling Rate:	48kHz
A/D - D/A Converters:	24-bit
Power Consumption (100-240VAC 50/60Hz):	< 150 watts
Dimensions:	
height	3.5 inches (89mm)
width	19 inches (483mm)
depth	11.15 inches (283mm)
Weight (max. - fully loaded with PA-2 cards):	15.25 lbs. (6.9kg)
Compliance:	AES48-2005 Grounding & EMC practices EU Directive 2002/95/EC, RoHS directive CE marked UL / C-UL listed

AudiaVOIP BLOCK DIAGRAM



WARRANTY

BIAMP SYSTEMS IS PLEASED TO EXTEND THE FOLLOWING 5-YEAR LIMITED WARRANTY TO THE ORIGINAL PURCHASER OF THE PROFESSIONAL SOUND EQUIPMENT DESCRIBED IN THIS MANUAL

1. BIAMP Systems warrants to the original purchaser of new products that the product will be free from defects in material and workmanship for a period of 5 YEARS from the date of purchase from an authorized BIAMP Systems dealer, subject to theterms and conditions set forth below.

2 If you notify BIAMP during the warranty period that a BIAMP Systems product fails to comply with the warranty, BIAMP Systems will repair or replace, at BIAMP Systems' option, the nonconforming product. As a condition to receiving the benefits of this warranty, you must provide BIAMP Systems with documentation that establishes that you were the original purchaser of the products. Such evidence may consist of your sales receipt from an authorized BIAMP Systems dealer. Transportation and insurance charges to and from the BIAMP Systems factory for warranty service shall be your responsibility.

3. This warranty will be VOID if the serial number has been removed or defaced; or if the product has been altered, subjected to damage, abuse or rental usage, repaired by any person not authorized by BIAMP Systems to make repairs; or installed in any manner that does not comply with BIAMP Systems' recommendations.

4. Electro-mechanical fans, electrolytic capacitors, gooseneck microphones, cords connecting handheld microphones, hard-drives, displays, and normal wear and tear of items such as paint, knobs, handles, keypads and covers are not covered under this warranty. All server-based devices are warranted for 3 years only.

5. This warranty is in lieu of all other warranties, expressed or implied. Biamp Systems disclaims all other warranties, expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose.

6. The remedies set forth herein shall be the purchaser's sole and exclusive remedies with respect to any defective product.

7. No agent, employee, distributor or dealer of Biamp Systems is authorized to modify this warranty or to make additional warranties on behalf of Biamp Systems. Statements, representations or warranties made by any dealer do not constitute warranties by Biamp Systems. Biamp Systems shall not be responsible or liable for any statement, representation or warranty made by any dealer or other person.

8. No action for breach of this warranty may be commenced more than one year after the expiration of this warranty.

9. Biamp systems shall not be liable for special, indirect, incidental, or consequential damages, including lost profits or loss of use arising out of the purchase, sale, or use of the products, even if BIAMP Systems was advised of the possibility of such damages.

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FCC NOTICE - CLASS B DIGITAL DEVICE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in either a residential or commercial installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: 1) Reorient or relocate the receiving antenna, 2) Increase the separation between the equipment and receiver, 3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected or 4) Consult the dealer or an experienced radio/TV technician for help.

BIAMP®

DoC DSPA201207

CE

EC Declaration of Conformity

Biamp Systems Corporation, as manufacturer having sole responsibility, hereby declares that our delivered version the following described product complies with the applicable provisions of the DIRECTIVES below except as noted herein. Any alterations to the product not agreed upon and directed by Biamp Systems Corporation will invalidate this declaration.

Brand Name:	Audia®
Product Description:	Audio Digital Signal Processors and Control Accessories
DSP Models:	AudiaFLEX CM, AudiaFLEX NC, AudiaFUSION, AudiaSOLO 4X12, AudiaSOLO 8X8, AudiaSOLO 12X4, AudiaVOIP
AudiaFLEX I/O Cards:	AEC-2HD, IP-2, OP-2e, PA-2, TI-2, VoIP-2
AudiaFUSION Amplifier Cards:	AM-600, AM-600c
Low Voltage Accessories/Controls:	LOGIC BOX, NPS-1, RED-1, RED-1F, RCB HUB, RP-L1, RP-L2, RP-S4, SELECT 8, VOLUME 8, VOLUME/SELECT 8, VCB

Applicable EC Directives:	Applicable Harmonized Standards:	
LVD Directive (2006/95/EC)	Safety	EN 60065:2002 IEC 60065:2001 + Amd 1:2005
EMC Directive (2004/108/EC)	Emissions Immunity	EN 55103-1:1996, Environment E2 EN 55103-2:1996, Environment E2
R&TTE Directive (1999/5/EC)	Terminal Equip.	TBR-21 (AudiaFLEX with TI-2 only)
RoHS Directive (2011/65/EU)	RoHS Recast	

Special Considerations for Product Environment or Compliance:

- Shielded cabling must be used for system connections.
- DSP Platform provides Low Voltage Limited Energy for controls.
- RED-1, RED-1F, use only CE marked Power over Ethernet (PoE) device.

Technical Documentation File, Location and Contact:

Biamp Systems Corporation 9300 S.W. Gemini Drive Beaverton, OR USA 97008	phone: fax: e-mail:	(503) 641.7287 (503) 626.0281 compliance@biamp.com

Authorized Representative: Larry Copley, Compliance Engineer

Authorized Signature:

Date and Place Issued: March 2010, Beaverton, Oregon USA

Revised: July 2012

RoHS COMPLIANT

RoHS

This Biamp product, including all attendant cables and accessories supplied by Biamp, meets all requirements of EU Directives 2002/95/EC of January 27, 2003, and 2005/618/EC of August 18, 2005, the EU RoHS Directives. An EU RoHS Materials Content Declaration document may be obtained at www.biamp.com

The following information is presented to comply with the requirements of Chinese law SJ/T11363-200

有害物质表 (Hazardous Substances Table)
Biamp Systems Corporation
数字信号处理器 (Digital Signal Processor)
型号 AudiaVOIP

部件名称 (Part Name)	有毒有害物质或元素 (Substances)					
	Pb 铅	Hg 汞	Cd 镉	Cr+6 六价铬	PBB	PBDE
设备机箱 (Equipment Chassis)	X	O	X	O	O	O
电源线 (Power Cord)	O	O	O	O	O	O
插拔式接线端子 (Plug-in Terminal Blocks)	O	O	O	O	O	O
手册和其他书面文档 (Manual and Paper Documents)	O	O	O	O	O	O
包装箱和所有包装材料 (Box and Packing Materials)	O	O	O	O	O	O

0：表示该部件所有均质材料中的这种有毒有害物质低于 SJ/T11363-2006 的限制要求.

X：表示该部件中至少有一种均质材料所含的这种有毒有害物质高于 SJ/T11363-2006 的限制要求.

在电触头和（或）镀镉所含的均质材料中，镉及其化合物的含量可以超过 0.01%，但欧盟指令 91/338/EEC（根据欧盟指令 76/769/EEC）限制销售和使用某些危险物质和制剂部分中所禁止的用途除外

在以下一种或多种物质所含的均质材料中，铅及其化合物的含量可以超过 0.1%:

1) 电子元器件中玻璃内所含的铅
2) 铅在钢材中是作为一种合金元素，含量可达 0.35%
3) 铅在铝材中是作为一种合金元素，含量可达 0.4%
4) 铅在铜材中是作为一种合金元素，含量可达 4%
5) 高熔点类焊料中的铅（即铅料合金，铅含量超过 85%）
6) 电子陶瓷部件内的铅
7) 由两种以上元素组成的焊料中所含的铅，用于连接针脚和微处理器包装，其中铅的含量超过 80% 但低于 85%
8) 顺应针连接系统内的铅
9) 倒装芯片封装中半导体芯片及载体之间形成可靠连接所用焊料中的

在正常使用情况下，中国环保使用期限为 10 年，条件是：

- 环境温度为 (Ambient Temperature) 0-40C (32-104°F)
- 湿度为 0-95%，无凝结
- 海拔高度为 0-10,000 英尺
- 气流不受阻碍
- 没有水或其他液体进入任何部件
- 电源为 100-240 Vac, 50/60 Hz; 150W (Power Supply)
- 部件没有损坏（损坏部件应立即修理）
- 由工厂授权人员使用批准的材料进行所有维修